

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

REC'D 30 MAR 2005

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To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2005/000631

International filing date (day/month/year)
13.01.2005

Priority date (day/month/year)
14.01.2004

International Patent Classification (IPC) or both national classification and IPC
F02F1/10, F02F1/16

Applicant
TOYOTA JIDOSHA KABUSHIKI KAISHA

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2005/000631

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

✓
**WRITTEN OPINION OF THE
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International application No.
PCT/JP2005/000631

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	2-11
	No: Claims	1
Inventive step (IS)	Yes: Claims	2-11
	No: Claims	1
Industrial applicability (IA)	Yes: Claims	1-11
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V.

- 1 Reference is made to the following document:

D1 : DE 198 49 912 A1 (DAIMLERCHRYSLER AG) 9 March 2000 (2000-03-09)

- 2 Document D1 discloses cf. figures 1-3 (the references in parentheses applying to this document):

A fastening structure for an engine, the engine including a cylinder block (1) having a cylinder bore and a cylinder head (2) assembled with the cylinder block (1), the cylinder block is divided into a cylinder inner wall portion (3,4) defining the cylinder bore and a cylinder outer wall portion (1) surrounding the cylinder inner wall portion (3,4), wherein the cylinder inner wall portion has an integrated upper deck portion (3), the upper deck portion (3) having a receiving surface on which the cylinder head (2) is placed, and wherein the cylinder head (2) is fastened to the upper deck portion (3) with a first bolt (6), the cylinder outer wall portion (1) is fastened to the upper deck portion (3) with a second bolt (7) at an opposite side of the upper deck portion (3) with respect to the cylinder head (2), and the second bolt (7) fastens the cylinder outer wall portion (1) to the upper deck (3) from an opposite side of the upper deck portion (3) with respect to the first bolt (6).

2.1 **INDEPENDENT CLAIM 1**

As can be seen from the above, document D1 discloses in combination all the features defined in independent claim 1. Hence the subject-matter of this claim is not new (Article 33(2) PCT).

3 **DEPENDENT CLAIMS 2-6**

The combination of the features of dependent claims 2-6 are neither known from, nor rendered obvious by, the available prior art.

4 **INDEPENDENT CLAIM 7**

- 4.1 Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document):

An engine with a cylinder head (2); a cylinder block assembled with the cylinder head (2), wherein the cylinder block is divided into an inner block member (3,4) and an outer block member (1), the inner block member (3,4) having a cylinder inner wall portion (4) defining a cylinder bore and an upper deck portion (3) integrally formed with the cylinder inner wall portion (4), the upper deck portion (3) having a receiving surface on which the cylinder head (2) is placed, and an opposite surface opposite of the receiving surface, the outer block member (1) having a cylinder outer wall portion surrounding the cylinder inner wall portion; a first bolt (6) that fastens the cylinder head (2) to the upper deck portion (3) such that the cylinder head (2) contacts the receiving surface; and a second bolt (7) that fastens the cylinder outer wall portion (1) to the upper deck portion (3) such that the cylinder outer wall portion (1) contacts the opposite surface, wherein the first bolt (6) and the second bolt (7) are intruding the upper deck portion (3) from the opposite sides of the upper deck portion (3) with respect to each other.

From this, the subject-matter of independent claim 7 differs in that:
the first bolt (6) and the second bolt (7) are threaded to the upper deck portion.

- 4.1.1 The subject-matter of claim 7 is therefore novel (Article 33(2) PCT)
The problem to be solved by the present invention may be regarded as: how assembling cylinder head, the upper deck portion and the outer block member without inclining the cylinder inner wall portion and deforming the cylinder bores. No other document from the prior art could be combined with the subject matter of document D1 in order to achieve the subject matter of claim 7.
For this reason, claim 7 is also considered to be inventive (Article 33(3) PCT)

- 4.1.2 Claims 8-11 are dependent on claim 7 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

- 5 The features of the claims are not provided with reference signs placed in

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PCT/JP2005/000631

parentheses (Rule 6.2(b) PCT).